TEXTILE TECHNOLOGY DIGEST

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Abstracts

FIBERS A

Natural Fibers A 1

Cotton yarn structure. Part 4. The strength of twisted yarn elements in relation to the properties of the constituent fibres

J. Gregory (British Cotton Industry Research Association). *Shirley Institute Memoirs 26:* 140-155 (September, 1953).

The strength of a yarn element depends on the strength of the constituent fibers, which may be measured by the Pressley bundle test. As the twist in the element increases the strength increases to a maximum and then decreases, the maximum strength being a compromise between the effect of the cohesion between fibers produced by the twist and a reduction in strength due to the inclination of the fibers to the yarn axis. The maximum element strength when corrected for the fiber inclination is less than the Pressley strength because of the unequal stressing of fibers at the core and the surface of the element. A formula is developed relating the maximum strength of the yarn element to fiber characters. 7 references.

Cotton yarn structure. Part 5. The relation between strength measurements made on fibres, fibre bundles, yarns, and cloth

J. Gregory (British Cotton Industry Research Association). *Shirley Institute Memoirs 26:* 156-174 (September, 1953).

Breaking lengths are given for four cottons in a variety of structures ranging from single fibers to cloths, and factors determining the effect of structure on breaking length, are discussed. The structures or tests, ranked in order of decreasing breaking length, are: single fibers, 1 mm test length; Pressley parallel bundle; single

fibers, 1 cm test length; twisted yarn element and single thread test on cabled yarn; cloth weft strip and single thread test on single yarn; lea test on single yarn. The general level of breaking length decreases and the proportionate effect of structure increases as the cotton quality is lowered. The influence of structure is greater than that of the basic strength of the fibers. 13 references.

Cotton's fixed characteristics serious research limitation

Am. Textile Reptr. 67: 14-15 (November 12, 1953).

This paper states that the present rate of improvement of synthetic fibers through research could result in rayon's completely supplanting cotton in end uses.

Ethylenimine-treated cotton

George L. Drake, Jr., Wilson A. Reeves, and John D. Guthrie (Southern Regional Research Laboratory, New Orleans, La.). *Textile Research J. 23:* 639-641 (September, 1953).

Raw cotton fiber in the form of card sliver was treated in an evacuated oven with the vapor of ethylenimine. The ethylenimine polymerized in or on the fiber and enhanced its ability to be dyed with acid dyes, but apparently there was little true chemical combination between the imine and the cellulose. Fiber treated in this way, along with appropriate controls, was converted into fabric which was evaluated by various test methods. The results show that cotton may be treated with ethylenimine without adverse effect on the fabric made from it, but, aside from changed dyeing characteristics, no outstanding property has yet been noted for ethylenimine-treated cotton. 9 references.

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Hard fibres

Ciba Review No. 99: 3538-3570 (August, 1953).

A general survey of the production of hard fibers including agaves (sisal), abaca, New Zealand flax, and bromeliaceae (pineapple fibers). A section on the extraction of these fibers is included. Extensive bibliography.

Modification of wool by the application of linear synthetic polyamides. Part 3. Pretreatment of wool

D. L. C. Jackson (Wool Textile Research Laboratory, Geelong, Australia). *Textile Research J. 23:* 616-622 (September, 1953).

The presence of foreign materials such as soaps and oils on wool interferes with the deposition of N-alkoxymethyl polyamides when used for the prevention of felting shrinkage. If the wool is rigorously cleaned by ethanol extraction or if the fiber surface is modified by pretreatment with hydrogen peroxide or other reagent, then the resin is able to attain its maximum effect and approximately 3% resin (based on the weight of the wool) is sufficient to prevent felting shrinkage. It is suggested that both forms of pretreatment tend to improve adhesion between resin and fiber and so render the resin deposit more effective in preventing felting. 9 references.

Polymerization of a series of vinyl monomers in wool

N. K. Boardman and M. Lipson. *J. Soc. Dyers Colourists 69:* 335-338 (September, 1953).

A series of vinyl compounds were polymerized within wool fibers. A direct relationship was found between the work of extension for single fibers and the hardness of the polymer. The fibers' co-efficient of friction also varied directly with polymer hardness when surface deposition occurred. Large quantities of polymethylmethacrylate gave satisfactory control of washing shrinkage, but the effect was believed due mainly to surface deposition. 11 references.

Preparation of microbiologically resistant wool by means of chemical modification. Part 1

Helmut Zahn and Hans Wilhelm (Chemical Institute of the University of Heidelberg, Germany). *Textile Research J. 23:* 604-613 (September, 1953).

An attempt was made to protect wool permanently against attack by bacteria and fungi by chemical action on the functional groups. Burial tests and measurements of tensile strength after

periods of up to three months in garden soil served for comparison. It was found that the duration of the life of wool in the soil-burial test may be raised many times by reaction with suitable bifunctional compounds. Partial substitution of amino and phenol groups also leads to a very considerable increase in resistance. No direct relationship exists between the acid and alkali solubilities and the resistance to fungus attack. This paper was published in German in the July, 1953, issue of *Melliand Textilberichte,* pages 609-615. 28 references.

Relationship of fineness in wool top, noil, card sliver, and grease wool

E. M. Pohle, D. D. Johnston, H. D. Ray, W. J. Manning, and W. A. Mueller (Wool Standards Laboratory, Livestock Branch, U. S. Production and Marketing Administration, Denver, Colo.). *Textile Research J. 23:* 663-671 (September, 1953).

The objectives of this study were (1) the determination of the relationships in fiber fineness and distribution of grease wool and wool top resulting from the processing; and (2) the development of adequate sampling procedures and appropriate analytical methods. Although the findings reported are not conclusive, the results are highly significant in terms of methodology and general indications. This report was also issued separately by the U. S. Production and Marketing Administration, Livestock Branch, in November, 1952.

Textile fibre properties. Part 6. The effect of manufacturing operations

A. J. Hall. *Textile Merc. 129:* 596,599,601 (October 2, 1953).

The Pauly test is described and used as a means of detecting and estimating degradation or chemical damage in wool during processing. Steaming and ageing are discussed and it is suggested that steaming might assist or take the place of ageing as a means for improving the processability of wool fibers which had been subjected to stress in mechanical processing.

Textile fibre properties. Part 7. Importance of wool fibre roughness

A. J. Hall. *Textile Merc. 129:* 646, 648-649 (October 9, 1953).

Various aspects of wool fiber roughness are reviewed, including methods of measurement and the influence of pH. A number of references to the literature are given.

Textile fibre properties. Part 8. Fibre roughness and wool felting

A. J. Hall. *Textile Merc. 129:* 943-945 (November 6, 1953).

The felting power of wool is largely governed by fiber roughness and, in particular, by the difference of roughness measured in the with- and anti-scale directions. Various aspects of fiber roughness are examined. Many references to the literature are given.

Textile fibre properties. Part 9. Cotton—the versatile fibre

A. J. Hall. *Fibres 14:* 343-345 (October, 1953). vember 13, 1953).

Review of the physical structure of the cotton fiber.

Artificial fibers A 2

Chemicals for use in synthetic fibre manufacture. Part 2

A. J. Hall. *Fibres 14:* 343-345 (October, 1953).

Part 2 of this series describes those chemicals used in the synthesis of Perlon L., polyacrylonitrile as used for the production of Orlon and other fibers, polyvinyl chloride as used in some French synthetic fibers, vinylidine chloride for Saran and Velon, vinyl acetate and polythene.

Stretch spinning of acetate rayon. Part 2

R. W. Moncrieff. *Skinner's Silk and Rayon Record 27:* 1155,1157 (October, 1953).

Dioxane as a stretching medium for cellulose esters. References to patent literature.

Stretch spinning of acetate rayon. Part 3

R. W. Moncrieff. *Skinner's Silk and Rayon Record 27:* 1278-1280 (November, 1953).

An account of the saponification of dioxane stretched cellulose acetate is followed by a discussion of hot water and steam stretching. Equipment for steam stretching is described and illustrated. Many patent references.

Acrilan acrylic fibre; light, lively and highly stable

Textile Wkly. 52: 1496, 1498, 1500 (November 13, 1953).

A summary of the properties, uses, and processing of Acrilan.

Production and properties of Acrilan

Frank J. Soday (Chemstrand Corporation, Decatur, Ala.). *Am. Dyestuff Reptr. 42:* P635-P638 (September 14, 1953).

The synthetic fiber, Acrilan, is described and its advantages to the industry are discussed. The economic significance of synthetics in stabilizing fiber supplies and prices is emphasized in an historical introduction.

Latest data on handling Dacron staple and tow

Textile Age 17: 64-68 (October, 1953).

This article summarizes Du Pont's information on mill processing of Dacron staple and tow. The data is offered as a basis for any further experimentation or work which the reader may decide to undertake.

Commercial spinning of colored Dynel begun

Union Carbide and Carbon Corp. *Am. Dyestuff Reptr. 42:* 647 (September 14, 1953).

Colored Dynel is being sold in tow and staple form. It is manufactured by adding pigments to a solution of the Dynel resin before spinning. A whiter Dynel fiber is now obtainable, made by adding white pigments in the same manner.

Dynel characteristics and processing

John H. McCormick (Textile Fibers Department, Carbide and Carbon Chemicals Corp.). *Textile Bull. 79:* 75-78 (November, 1953).

Fiberglas

American Fabrics No. 27: 87-106 (1953-54).

A survey of the history, manufacture and, in particular, the end uses of Fiberglas.

Effect of draw ratio and temperature on electrical conduction in nylon filaments

E. P. Sharman, S. P. Hersh, and D. J. Montgomery (Textile Research Institute, Princeton, N. J.). *Textile Research J. 23:* 793-798 (November, 1953).

In a study of electrical conduction in nylon as a function of draw ratio and temperature, it was found that the conductance depends upon washing history. Accordingly, a standard washing procedure was devised to allow reproducible and comparable measurements to be made. The conductivity at 30°C thus measured was shown to decrease with increasing draw ratio to an extent greater than can be accounted for by the decreased moisture regain produced by drawing. Upon decreasing the temperature from 45°C to 15°C, the conductivities at constant regain of both drawn and undrawn nylon fell, the difference between the two diminishing and apparently disappearing at 15°C. At none of the temperatures and regains studied could the temperature de-

pendence be accounted for as a simple rate process. 7 references.

Force-temperature behavior of nylon filaments at fixed extensions

George M. Bryant (Textile Research Institute, Princeton, N. J.). *Textile Research J. 23:* 788-792 (November, 1953).

By use of the thermodynamic equations for elasticity, force-temperature measurements on nylon filaments at fixed extensions in water have been related to the molecular mechanism of elasticity. Drawn fibers at low extensions were found to have an entropy force component larger than the total force. This effect was less pronounced in undrawn fibers, but persisted over a wider range of extensions. For undrawn nylon, a transition in the force-temperature behavior has been found which differs markedly from the second-order transition in rubber; rubberlike elasticity was found below rather than above the transition temperature. 15 references.

Generalized creep curves for nylon

Ephraim Catsiff, Turner Alfrey, Jr. and M. T. O'Shaughnessy (Polytechnic Institute of Brooklyn, N. Y.). *Textile Research J. 23:* 808-820 (November, 1953).

This paper reports the chief results of a study of the creep of a commercial sample of nylon 66 under constant tension, at 36°C, and several moisture conditions. The investigation was undertaken in the hope of finding a more general representation of the creep behavior of nylon than is afforded by the sets of primary creep curves themselves, using various conditions. Generalized creep curves to represent the first-creep behavior of nylon at all loads under each of the humidity conditions used have been constructed. 12 references.

Mechanical behavior of nylon filaments in torsion

W. G. Hammerle and D. J. Montgomery. *Textile Research J. 23:* 595-604 (September, 1953).

The stress relaxation in torsion of 6, 6-nylon filament is found to be nearly linear in the logarithm of time over periods from 20 to 20,000 seconds after twisting. On the basis of a generalized Maxwell model the behavior of the filament in free torsional vibration can be predicted from the results of the stress-relaxation experiments. The predictions were tested by experiments with a torsional pendulum whose period was varied

from 50 to 400 seconds. The angular displacement of the pendulum is an exponently damped sinusoid over nearly the entire course of the motion. The observed dependence of the angular frequency upon the moment of inertia of the bob and length of the filament agrees within 3% with the values predicted from the stress-relaxation experiments. The observed and predicted values of the damping constant agree within 13%. The stress relaxation in extension also is found to be nearly linear in the logarithm of time over periods from 10 to 2,000 seconds after stretching. Quantitative correlation between torsional properties and extensional properties has not been made because of the complications introduced by the anisotropy of the drawn nylon. 5 references.

Possible applications and the processing of Perlon

Heinz Meinicke-Kleint. *Textil- u. Faserstoff-tech. 3, No. 1:* 18-23 (1953); *in German.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 487 (July 30, 1953).

Various properties of Perlon, including general physical and mechanical properties, abrasion resistance, crease resistance, water absorption and heat insulation, are discussed with a view to indicating what features may be imparted to a fabric by the inclusion of either pure Perlon or a mixture with other standard fibers. Guidance is given as to correct processing procedures as, for example, in blending, spinning, weaving and various finishing processes.

Another chapter of the Terylene story

D. N. Marvin. *Textile J. Australia 28:* 594-596,634 (July 20, 1953).

Physical and chemical processing of Terylene yarn.

New type Vicara

Virginia-Carolina Chemical Corp. *Am. Dyestuff Reptr. 42:* 643 (September 14, 1953).

Vicara crimped by a new process is now on the market. The new Vicara has more crimp than the conventional product and the crimp is sufficiently stable to be retained throughout processing.

YARN PRODUCTION B

Constant yarn control

British Rayon and Silk J. 30: 81 (September, 1953).

The "Hacoba" self-compensating tension unit has been developed by Plutte, Koecke and Co.,

Wuppertal-Barmen, Germany. The unit overcomes variations of tension arising from the shape or type of supply package. A special ruby insert in the yarn guide increases the wear resistance of the guide as well as greatly inhibiting the generation of static. The unit may be used with fine synthetics, resilient, or heavily-sized yarns.

Elimination of slubs

L. M. Howell. *Textile Bull. 79:* 95-98 (November, 1953).

Questions and answers on problems with slubs.

New method in the processing of rayon staple

Wilhelm Meyer. *Textil-Praxis 8, No. 5:* 375-378 (1953); *in German.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 476 (July 30, 1953).

In this article modifications are explained which can be made in the mixing of rayon staple of varying length, to obtain regularity of diameter and fine counts of yarn. Use is made of the Uster testing apparatus and data are given.

Problems of mixing fibres arising during the various processes involved in the conversion of raw material to the finished product

N. Barnabe. *Riv. tess. Aracne 8, No. 1:* 77-81; *No. 2,* 201-208; *No. 3,* 377-384 (1953); *in Italian.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 474 (July 30, 1953).

The blending of fibers of varying length and fineness involves problems at all stages of processing in the production of a yarn. These problems become more acute when different fibers, natural, rayon and synthetic fibers, are mixed since differences in chemical, physical and mechanical properties have to be taken into account. In this paper these characteristics, for example, friction or slip, density, moisture absorption, etc., are discussed with reference to the processing characteristics of individual and mixed fibers.

Processing nylon staple and tow

D. M. Schlerf. *Textile Age 17, No. 8:* 44-46 (1953). Through *Chemical Abstracts 47:* 9620 (September 25, 1953).

A summary of information currently available on the general processing of nylon staple and tow. The value of static eliminators, the blending, and the testing and dyeing of fabrics are discussed.

Regent Coning Oil; Spinol RL

Laurel Soap Mfg. Co., Phila., Pa. *Am. Dyestuff Reptr. 42:* 646 (September 14, 1953).

Regent Coning Oil is a self-emulsifying, anionic, antistatic coning oil containing no mineral oil. It is particularly designed to improve the running and knitting properties of Orlon, Dacron, nylon, Acrilan, and acetate. Spinol RL is a blended, anionic, non-mineral oil compound to give lubrication and anti-static control for spinning and knitting of Dacron, Orlon, nylon, and acetate fibers and blends.

Carding and Combing B 2

Card clothing firm shows the way

Textile Merc. 129: 626,628,630 (October 9, 1953).

This article describes the methods and organization of Horsfall and Bickham Ltd., Salford, England, manufacturers of card clothing.

Experiences and observations in the use of all-steel cards with man-made fibres

N. Reinfeld. *Textil-Praxis 8, No. 5:* 378-382 (1953); *in German.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 475 (July 30, 1953).

The advantages of all-steel card-clothing for general use with man-made fibers are compared with those of traditional elastic card-clothing. Data relating different card densities to mixed and uniform viscose staple fibers are supplied. Names and addresses of three German manufacturers of this type of card are given.

The Sant'Andrea model PSL comber

Otto Reinhardt. *Melliand Textilber. 34:* 924-928 (October, 1953); *in German.*

The machine is provided with a fixed detaching roller and an oscillating nipper carriage, but differs from other combing machines in its special type of nipper motion. The resulting advantages are described in detail. The increase in production is about 30%. The author gives a detailed description of the construction and operation of this new comber, accompanied by 14 illustrations in the form of photographs and sketches.

Whitin's new 50-inch finisher doffer

Whitin Review 20: 39-40 (September-October, 1953).

Claims 10-15% higher woolen carding production.

Drafting and Roving B 3

Movement of short (floating) fibres in the drafting field of the drawing system

N. Reinfeld. *Melliand Textilber. 34:* 825-826 (September, 1953); *in German.*

An attempt is made to obtain with the aid of

the probability theory more insight into the laws of motion of floating fibers in the drafting field of a drawing system and to determine mathematically the magnitude of the drawing faults caused by these fibers. This provides at the same time a practical example of the applicability of the probability theory to questions of the theory of spinning.

Roller slip and the irregularity of cotton and rayon-staple draw-frame slivers. Part 1. Practical and experimental

G. Dakin, G. A. R. Foster, and J. Locke. *Shirley Institute Memoirs 26:* 103-128 (September, 1953).

The effects of roller slip on the irregularity of slivers produced on a cotton drawframe under practical working conditions are described, and it is shown that a considerable improvement is necessary in the ordinary type of drawframe. The factors which influence roller slip are investigated and the modifications to the drawframe required to attain a reasonable margin of safety against roller slip are discussed. 5 references.

Roller slip and the irregularity of cotton and rayon-staple draw-frame slivers. Part 2. The nature of roller slip and the theory of draft distribution

G. A. R. Foster. *Shirley Institute Memoirs 26:* 129-138 (September, 1953).

Part 1 of this article has described the experiments on roller slip at the drawframe, and discussed their practical application. Part 2 first gives a simple account of the fundamental principles of roller slip and an explanation of the formation of the roller-slip wave. This explanation is applied to the calculation of the critical roller weighting required to prevent roller slip, and to the effect of draft distribution on the critical weighting. The predictions of the theory are shown to agree excellently with the experimental results. 3 references.

Theory of reduction of initial irregularities by mixing in drawing

Margaret Hannah. *J. Textile Institute 44:* T436-T448 (October, 1953).

With the present interest in short processing has come a renewed interest in the evaluation of the efficiency of the mixing in a drawing set. No complete theory of this has yet been obtained and the problem is a complex one. One aspect of it, previously almost ignored, is treated in this paper. The aim of mixing in the drawing set is

to reduce irregularities in some property, e. g., in color, fiber composition, weight per unit length. Variations in this property may occur within the initial tops, in which case they are reduced by doubling a number of tops together, the variance being then divided by the number of doublings. They may be introduced at any stage of drafting by irregularities in the drafting process resulting in changes in the relative positions of the fibers; and, again, the variation introduced within a bobbin can be reduced at the next stage by doubling a number of such bobbins together. A source of variation, more difficult to remove is that introduced by differences between the initial tops; that is, to take the simplest case, when one top is of lighter weight than, or of a slightly different color from the others. Such variations lead to differences between bobbins all the way down the drawing, and they may be responsible for count variations in the yarn (though these could be eliminated by accurate use of the weigh box) and for serious weft bars or patterning in the piece. It is the theory of these variations alone which is treated in this paper. The theory predicts, subject to certain simplifying assumptions, what the effect of a given initial variation will be in producing differences between the final bobbins of yarn. This effect is shown to depend on the design of the drawing set, on package size and on the way in which bobbins are chosen to be doubled together, as well as on the total doublings used. In consequence, the mixing efficiency of a given set cannot be assessed purely by the number of doublings.

Three delivery gill reducer for intermediate drawing

Holdsworth Gill Screw Co., Pawtucket, R. I. *Textile World 103:* 156 (November, 1953).

This machine, it is claimed, opens the bottleneck at the intermediate drawing operation.

Spinning B 4

Balloon diameters and thread tensions calculated for different cap-spinning conditions

J. Crank and Doreen D. Whitmore (Courtaulds Limited, England). *Textile Research J. 23:* 657-663 (September, 1953).

The influence of balloon height, cap and bobbin size, bobbin speed and yarn denier on balloon size and thread tension was investigated theoretically. Balloon diameter and bobbin tension both increase with increasing denier, cap diameter, and bobbin speed. There is a maxi-

mum size of bobbin greater than which no free balloon exists but only one which rubs the side of the cap. Similarly, for a given bobbin all balloons of more than a certain height rub the cap side. Over the range considered, bobbin size and balloon height have little effect on balloon diameter. 5 references.

Can yarns of worsted character be produced by the woollen spinning process?

Georg Liebig. *Melliand Textilber. 34:* 935-936 (October, 1953); *in German.*

If high-quality yarn is to be produced, it is essential that fine wire clothing and narrow tapes are used and that the fiber material permits a high draft. A high draft, in turn, requires perfectly arranged fibers and a uniform sliver. For the degree of draft, the fineness of the fiber and the number of fibers in the cross-section of the yarn are of importance. Thus, the finer the fibers are, the higher the degree of draft that can be applied in spinning. In addition, good extensibility and speed of the fibers are required.

Compensating spindle; 16,000 R. P. M. and upwards with unbalanced packages

Ernest Scragg and Sons Ltd. *Textile Wkly. 52:* 1452 (November 6, 1953).

Advantages claimed are: elimination of moving catches and levers, etc.; cleaner design with enclosed spring which removes much of the possibility for collecting waste and dirt; automatic pressure of the spindle both on to the driving belt and back on to the brake.

Developments in uptwister spindles

Ernest Scragg and Sons Ltd., Macclesfield, England. *Textile Wkly. 52:* 938,940,942 (October 2, 1953).

This article gives an account of the experiences of Ernest Scragg and Sons with the roller-bearing spindles as available to them immediately after the war, and the evolution of their own new spindle assembly.

Device prevents singles on spinning frames

James C. Faulkner, Fayetteville, N. C. *Textile World 103:* 166 (November, 1953).

A singling preventer for spinning frames on coarse counts and nub yarns has been developed.

Double twisting of nylon; the Landolt two-for-one spindle

C. Landolt and Co., Switzerland. *Textile Merc. 129:* 593,595,601 (October 2, 1953).

A new two-for-one twisting spindle for nylon

with the advantages of low yarn tension, large packages, low power consumption, and reduction in noise level in the spinning room.

Production of soft yarns on the ring-frame

Walter Frenzel and Manfred Luxa. *Faserforsch. u. Textiltech. 4, No. 3:* 100-116 (1953); *in German.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 499 (August 15, 1953).

The authors give data and tables of three series of experiments, which led to the control of tension and twist in the production of soft-spun yarns on the ring-frame. These experiments were carried out in three main groups; the ring frame was rearranged accordingly. One series of experiments was made with a "negative" ring drive in which the ring moves in the opposite direction to the revolutions of the traveller; this resulted in the desired decrease of tension in the yarn, but wear and tear on the traveller increased considerably. In another series of experiments the yarn was spun by a driving ring with a loose traveller moving in the same direction; this increased the tension on the yarn but was less hard on the traveller. In both methods successful control of the tension was possible. The third method was found to be the most suitable one and led to application for patent rights. In it, the yarn is spun by a driven ring with a fixed traveller which can be replaced by a hook. This causes an even tension in the drafting stage, insertion of twist, and the winding of the yarn package with nearly complete elimination of breakage and absolute control of the tension by a high-frequency brake.

Results achieved at Beaumont and Limestone, S. C., add prestige to large package installations

Textile Bull. 79: 81-82,84-85 (October, 1953).

Large packages in coiling, roving and spinning have meant (1) increased doffing cycles, (2) reduction in package handling, (3) improved efficiency, and (4) reduction of labor costs.

Theoretical study of ring and cap spinning balloon curves (with and without air drag)

C. Mack. *Shirley Institute Memoirs 26:* 175-190 (September, 1953).

A mathematical study of the properties of balloon curves is given, based on certain assumptions about the air-drag. 6 references.

Variable speed ring spinning; the Dean Carter variable speed drive

Carter Bros., Rochdale, England. *Textile Wkly. 52:* 946,958 (October 2, 1953).

Whitin's new spindle torque meter

Whitin Review 20: 21-25 (September-October, 1953).

Winding and Spooling B 5

Rapid-Coner Type KS; a high speed cross winder for cotton, etc.

Schweiter Ltd., Zurich, Switzerland. *Textile Wkly. 52:* 1536 (November 13, 1953).

Intended for steeply tapered cones of cotton and spun rayon yarn on paper tubes.

Patents

Apparatus for imparting false twist to yarn

Georges Heberlein (to Heberlein Patent Corporation). USP 2 655 781, October 20, 1953.

A false high twisting device capable of inserting at least 12.7 turns per inch by means of a rotating tube and guide roller through which the yarn is passed.

Apparatus for locking cop tubes on cop winding machines

Tillman T. Bunch (to Western Electric Company, Inc.). USP 2 656 127, October 20, 1953.

Change-over drive for spinning and twisting frames

Roger W. Cutler. USP 2 655 782, October 20, 1953.

A twisting frame spindle drive with means for controlling the tension and contact of the driving belt with the spindle whorl.

Cotton feed control system

Woodrow W. Bledsoe. USP 2 657 474, November 3, 1953.

Cotton turbo-cleaner process

David G. Black (to United States of America). USP 2 651 812, September 15, 1953.

A process of cleaning seed cotton employing differential motion of air jets and cotton tufts. Foreign matter is disentangled and removed from the tufts by the air and is forced to the outer periphery of the cleaning zone for removal.

Spindle mounting for textile spinning or like machines

Arthur Westall (to T. M. M. (Research) Limited, England). USP 2 657 524, November 3, 1953.

Tension control device for textile thread

Chadwick B. Kingsbury and Ralph H. Carter

(to North American Rayon Corp.). USP 2 656 126, October 20, 1953.

A tension device for producing different density packages of twisted yarn which consists of a rotatable wheel with a yarn path, a means for controlling the angle of the yarn's contact with the wheel, and a means for driving the wheel at predetermined speeds.

Textile yarn clearer

Robert John Kennedy, Bradford, England. USP 2 654 938, October 13, 1953.

A device for removing yarn slubs and imperfections which consists of a concave bar over which the yarn is passed and a pivotally mounted clearer operating at a predetermined distance from the concave face.

Thread guiding device

Oswald Stenglein (to Maschinenbau- & Giesserei A. G., Switzerland). USP 2 659 539, November 17, 1953.

Yarn guiding device for machines which wind cross-wind spools.

Trumpet for use in textile industry

John J. Bradley (to Gear Grinding Machine Co.). USP 2 659 108, November 17, 1953.

Textile trumpet comprised of an outside casing, for permanent machine installation, and an exchangeable plastic liner, held to the casing frictionally.

Twisting device

Ede Hegedus, Zurich, Switzerland (to Warner & Swasey Co.). USP 2 659 193, Nov. 17, 1953.

Device by which yarn can be twisted without threading the yarn's end into the rotating twisting member. In this way the yarn can be introduced at any point of its length, laterally, into the rotating twisting member.

Winding machine

Winthrop L. Perry and Edward J. Abbott (to Abbott Worsted Mills). USP 2 659 538, November 17, 1953.

Automatic winding machine comprised of a means for repeatedly winding a bobbin, removing the wound bobbin and replacing it with a bare bobbin.

Yarn tensioning device

James R. O'Dell (to Eastman Kodak Company). USP 2 656 125, October 20, 1953.

A yarn tensioning device in which the yarn is passed between two plates, one of which is bowed

and adjustable assuring uniform pressure across the area of contact.

FABRIC PRODUCTION C

Reed marks in gabardines

Helmut Hock. *Melliand Textilber. 34:* 836-837 (September, 1953); *in German.*

Reed marks are caused in warping mainly by old-fashioned creels, from which the yarn is drawn-off under different tensions. They can also be caused by incorrect sizing. Occasionally, the cloth shearing machine is responsible for these faults. The author offers suggestions for their prevention.

Shiners, bright picks

A. Perichard. *Rayonne fibres synth. 9, No. 4:* 15-28 (1953); *in French; Reyon Zellwolle Chemiefasern 31, No. 4:* 202-208 (1953); *in German; Raion fibre sint. 3, No. 4:* 9-20 (1953); *in Italian.* Through *Brit. Cotton Ind. Res. Assoc.. 33:* 459 (July 15, 1953).

Various causes of the occurrence of bright ends and picks in the manufacture of rayon fabric are listed and discussed.

Textile scaffolding threads. Part 22. Functions of the removable carrier thread

Arthur Johnson. *Skinner's Silk and Rayon Record 27:* 1270-1271 (November, 1953).

Pile fabrics.

Yarn preparation C 1

Homogenizing is analyzed

Textile Bull. 79: 91-92, 94-95 (November, 1953).

This panel discussion on homogenization in slashing gives observations from actual mill experience.

Modern, efficient sizing methods; how the "Holt" multi-cylinder sizer operates

George Lee (Thomas Holt Ltd., Rochdale, England) *Textile Wkly. 52:* 956-958 (October 2, 1953).

Warper for narrow fabrics takes range of bobbins

Swindells Engineering Co. Ltd., Macclesfield, England. *Textile World 103:* 158 (November, 1953).

Warper for narrow fabrics runs at 10 to 100 yards per minute. Three heads are standard, but one-head and two-head warpers are also available.

Weaving C 2

Loom speed and loom output

Walter Schulze. *Melliand Textilber. 34:* 931-932 (October, 1953); *in German.*

The output of the loom does not rise in proportion to the number of revolutions per minute. For every loom there is an optimum number of revolutions per minute, and the author points out the conditions governing this value. These conditions can be easily established by means of records of yarn breakages.

Low-built loom is quiet running

Richard Haase & Co., Westphalia, Germany. *Textile World 103:* 162 (November, 1953).

Redesigned and streamlined looms for weaving light and medium-weight cotton, linen, spun-rayon, and wool fabrics are described. With drop boxes, they work from punched steel links or from the dobby.

Mill men had ideas, a machinery builder had the know-how—result, the HB-3 loom

Textile Bull. 79: 87-93 (October, 1953).

Details of the development, features, and advantages of the HB-3 loom.

Oscillating back rest as compensating factor for tension differences

Walter Pfohl. *Melliand Textilber. 34:* 838-839 (September, 1953); *in German.*

Simple formulas are given for calculating, from the height and length of the shed, the additional length of warp required when the shed is open, and also the lift of the cam for actuating the oscillating back rest to compensate for the differences in tension.

Recording of yarn breakages

Klaus Adam. *Melliand Textilber. 34:* 827-828 (September, 1953); *in German.*

The author points out the importance of keeping continuous records of the frequency of yarn breakages in weaving. The causes of yarn breakages give information on defects on the loom or the preparing machines. The author discusses the best method of carrying out such recordings. He gives a form including the most common causes of yarn breakages to facilitate the work of recording. A basis of calculation is also given for comparison of different records.

Two Swedish woollen looms; larger shuttle means larger pirns and less replenishing

Texo A-B Maskinfabrik, Norrkoping, Sweden.

Textile Wkly. 52: 1390-1391 (October 30, 1953).

Descriptions are given of the TOS four-box loom, suitable for weaving seven-color fabrics, with a claimed running efficiency of 80%, and TOB weft mixer for woolen and worsted cloths with an electro-magnetically activated pirn change driven through the sley motion.

Weaving efficiency aid; the Baer warp tension feeder

Henry Baer and Co. Ltd., Zurich, Switzerland. *Textile Merc. 129:* 591 (October 2, 1953).

A new warp tension feeler for measuring tension in a group of yarns.

Knitting C 3

Developments in machine knitting. Part 1. On garment making machines

J. B. Lancashire. *Textile Recorder 71:* 258-260 (October, 1953).

This is the first of two articles on the principal developments in knitting machinery for the past three years. It deals with machines for making the whole or parts of fully fashioned and stitch-shaped garments, including hosiery.

Embroidery plating on men's hose

Joseph Rab. *Knitter 17:* 38, 40-42 (November, 1953).

Embroidery plating, also known as wale plating, warp plating, and warp striping, is discussed and the basic mechanisms are described.

Fashioned to fit—with seamless comfort

Rohm & Haas Reptr. 11: 12-15 (September-October, 1953).

This article describes the specialty seamless elastic and non-elastic hosiery production of the Burson Knitting Company, Rockford, Ill.

Machine knits "braided" rugs

Fidelity Machine Co., Phila., Pa. *Textile World 103:* 164 (November, 1953).

This Sinfra knitting machine knits braided-type oval rugs at speeds up to 40 feet per minute. One operator can handle ten machines.

New 56-gauge raschel machine uses up to five guide bars

Robert Reiner, Weehawken, N. J. *Textile World 103:* 156 (November, 1953).

The machine is especially adapted to knitting elasticized fabrics, including power net. It also knits synthetic yarns in sizes comparable to

those used in tricot knitting, and it has successfully knitted 80s cotton yarn.

Special fabrics C 4

Auto upholstery fabrics get a new sparkle

American Fabrics No. 27: 107-109 (1953-54).

The designer's approach to the creation and styling of a typical automotive upholstery fabric.

Combined colour and weave effects; particulars of some striking designs

Wool Record 84: 912, 917 (October 15, 1953).

While the choice of color and weave effects is restricted by the use of one weave throughout the range of color pattern schemes, the combination of color and weave effects of greater distinction is possible by using two or more weave elements.

Design in woven fabrics. Part 12. Granite weaves

Wool Review 27: 33,35 (October, 1953).

Point paper illustrations are given of a number of granite weaves.

Lace

American Fabrics No. 27: 41-59 (1953-54).

A survey of lace designers and uses of laces in modern fashions. A section on problems of lace finishing is included.

Novelty in pick-and-pick styles

Wool Record 84: 1095, 1097 (November 5, 1953).

Increasing variety in color and style by the use of two color elements in weaving.

Production of tulle

E. Heer. *Melliand Textilber. 34:* 829-833 (September, 1953) ; *in German.*

The author first gives a brief survey of the historical development of bobbinet making, and then describes in detail the construction and operation of the bobbinet frame. He also discusses some technological expressions, such as fineness, number of spots, number of meshes, etc.

Reversible coating tweeds

Wool Record 84: 794, 803 (October 1, 1953).

Designs for reversible tweeds.

Twist warp fancy suitings

Wool Record 84: 1030, 1039 (October 29, 1953).

Details are given of some typical styles.

Woollen and worsted squares

Wool Record 84: 1148, 1153 (November 12, 1953).

Details of some colored designs are given.

Fabric Applications C 6

Textiles for hospital use; static electricity risks in relation to materials used

Textile Merc. 129: 910-911 (October 30, 1953).

Viscose rayon is claimed to be at least as good as, if not better than, cotton in minimizing explosion risks. 4 references.

Patents

Bobbin

Joseph W. Bourassa. USP 2 652 213, September 15, 1953.

An improved shock resistant bobbin constructed of a cylindrical barrel section of wood and an annular reinforced vulcanized fiber base.

Bobbin

William B. Broadbent and Boyd H. Sing (to Sonoco Products Co.). USP 2 659 547, November 17, 1953.

Bobbin consisting of a seamless metal barrel surrounded by a seamless covering of plastic.

Composite picker stick

Raymond A. Hagstrom (to Crompton & Knowles Loom Works). USP 2 655 949, October 20, 1953.

Container for yarn packages

Leonard George Harraway, England. USP 2 655 019, October 13, 1953.

A yarn package container particularly suitable for straight bar knitting machines for fully fashioned stockings which consists of a rear wall for supporting a number of packages and a forward wall containing a guide for drawing yarn from the packages.

Current-supply means for weft stop motions

Paul Depoilly (to Saint Frères, Société Anonyme, Paris, France). USP 2 655 184, October 13, 1953.

Hand weaving loom

Hilma L. G. Berglund. USP 2 655 947, October 20, 1953.

Knitting and other textile machine

John Edward Lynam (to William Cotton Limited, England). USP 2 655 801, October 20, 1953.

A fabric draw-off mechanism for knitting machines employing an electromagnetic means for driving and varying the tension of a fabric take-up roll.

Loom and actuation means for loom shuttles

Antonio Longoria. USP 2 652 073, September 15, 1953.

A loom in which the shuttle is actuated by a coil spring device.

Loom harness connector

Frank H. Kaufmann (to Steel Heddle Manufacturing Co.). USP 2 659 394, November 17, 1953.

A hook is mounted on a harness frame for connecting the frame with the actuating strap.

Loom weighting for weaving

Henry Richmond, Bolton, England. USP 2 655 948, October 20, 1953.

A warp let-off device employing compression springs and connectors to transmit braking pressure to the warp beam.

Loop pile fabric

Eugene F. Clark (to Marshall Field & Company). USP 2 655 951, October 20, 1953.

A loop pile fabric comprising ground and pile yarns woven in such a manner as to form pile loops extending both warp-wise and filling-wise.

Machine for unwinding remnants of yarn from bobbins

Heinz Balken, Leiersmuhle, Germany. USP 2 659 126, November 17, 1953.

Method and apparatus for liquid treating yarn travelling in a helical path

George M. Allen and John Watson Pedlow (to American Viscose Corp.). USP 2 655 429, October 13, 1953.

Apparatus for the liquid treatment of a traveling yarn comprises a rotor for advancing yarn turns, a liquid container, and a member having projections thereon extending into the liquid which rotates to project drops of liquid onto the yarn turns.

Method and fashioning means for knitting machines

Herbert Erich Haehnel (to Textile Machine

Works). USP 2 655 018, October 13, 1953.

Method of knitting

Paul L. St. Pierre (to Hemphill Co.). USP 2 651 929, September 15, 1953.

Method of knitting on a circular independent needle machine using dial and cylinder needles to form courses and loops in such a manner as to produce a knitted fabric.

Narrow ware loom

Elbridge R. Holmes (to Crompton & Knowles Loom Works). USP 2 657 715, November 3, 1953.

Parallel tongue and picker stick check for looms

John C. Crocker. USP 2 655 183, October 13, 1953.

Shuttleless loom with continuous weft supply

Carlo Villa and Asturio Morlani, Italy. USP 2 652 072, September 15, 1953.

Straight bar knitting machine

Kurt Willi Wickardt (to Hosemaster Machine Company Ltd., England). USP 2 655 800, October 20, 1953.

Terry weave fabric

George L. Mills (to Bates Manufacturing Company). USP 2 655 950, October 20, 1953.

A fabric which has a warp and filling ground and employs extra warp yarns to form pile areas of terry loops defining a figured pattern.

Warp knitting machine tensioning device

Clarence J. Brown and Theodore F. Schwanda (to Blue Ridge Textile Company, Inc.). USP 2 651 930, September 15, 1953.

Device for preventing the formation of stop marks in warp knitting by using a tensioning rod to maintain a predetermined tension during operation, increasing tension as the machine is stopped, and restoring the predetermined tension upon start-up.

STANDARD FINISHING D

Bibliography of evaluation of enzymic desizing agents

Am. Assoc. of Textile Chemists and Colorists. *Am. Dyestuff Reptr. 42:* P626 (September 14, 1953).

48 references.

Bleaching with some peroxygen chemicals

B. K. Easton (Buffalo Electro-Chemical Co.,

N. Y.). *Textile J. Australia 28:* 550-554 (July 20, 1953).

This paper discusses the bleaching of textiles, rayons, cotton, and wool, with hydrogen peroxide, peracetic acid, and ammonium persulfate. Uses and methods are explained.

Drying of textiles; a new machine for knitted tubular fabric

Hicking, Pentecost and Co. Ltd. *Textile Merc. 129:* 500-501 (September 18, 1953).

An improved drying machine which allows hot air to be blown twice through the fabric and which can be run continuously. Full details of construction and operation are in British Patent 694 499.

Machine for cotton carpeting: finishes, extracts, and folds

Birch Bros., Inc., Somerville, Mass. *Textile World 103:* 156 (November, 1953).

A vacuum extractor after the squeeze rolls raises the pile.

Nylon textiles; the use of acid solutions of sodium chlorite for bleaching

Textile Merc. 129: 906, 921 (October 30, 1953).

According to a Technical Service Bulletin published by British Nylon Spinners Ltd., the use of acid solutions of sodium chlorite has been found effective for many bleaching operations. Practical details of application are given.

Patents

Drying wound textile package

Horace P. Fray, Jr. (to American Viscose Corp.). USP 2 657 472, November 3, 1953.

A method of drying a wound ring-shaped package of yarn by centrifuging, rewetting, and drying in a gaseous medium.

Machine for processing thermoplastic hosiery

Harry S. Drum and William C. Dodson (to Smith, Drum and Company). USP 2 651 932, September 15, 1953.

Machine in which synthetic stockings are dyed, finished, extracted, and dried ready for inspection and packaging.

Mercerizing and calendering of cotton fabric for improved luster

Charles Fetscher (to Cluett, Peabody & Co. Inc.). USP 2 646 341, July 21, 1953. *Through Chemical Abstracts 47:* 10865 (October 25, 1953).

Cotton-containing fabrics may be given a durable, silky appearance or luster by swelling the fibers with NaOH followed by calendering. For example, cotton is treated with 15-35% NaOH. The temperature of treatment is not critical and may range from 0 to 100°. After treatment, the fibers become swollen and plastic. The fabric is rinsed to remove the NaOH and then subjected to pressure to flatten the fibers and to present a relatively broad, smooth surface.

Tension-less machine

Naamlooze Vennootschap P. F. van Vlissingen and Co.'s Katoenfabrieken, Holland. BP 694 158. *Through Dyer 110:* 482 (October 2, 1953).

A machine for eliminating or regulating tension on cloth during wet processing.

DYEING AND PRINTING E

Apparatus for affixing fabric to printing tables

Walter Geiringer, Australia. USP 2 655 865, October 20, 1953.

A printing apparatus in which a gum is applied to an endless blanket belt and to the material to be printed so that pressure contact of the two will result in their adhesion and cause the material to pass over a table with the blanket belt.

Application of dyes to textile fibers at high temperatures

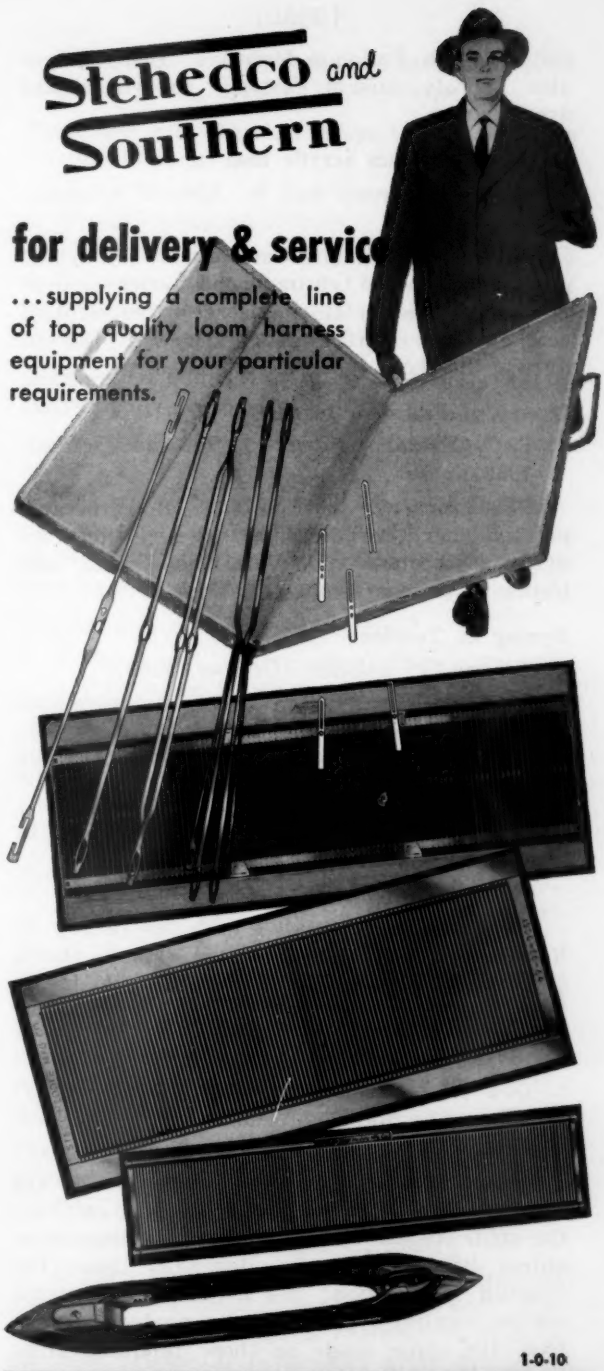
Charles L. Zimmerman. (American Cyanamid Co., Calco Chemical Div., Bound Brook, N. J.). *Am. Dycstuff Reptr. 42:* P627-P634 (September 14, 1953).

The trend in dyeing today is toward higher temperatures of application. In this article, some of the fundamental principles of dyeing at temperatures above 212° F. are discussed. The effect of high temperatures upon the stability of dyes and the tensile strength of fibers is shown. An historical review of high-temperature dyeing, including the development of modern high-temperature dyeing equipment, is also included. 26 references.

Dyeing methods for Perlon with cotton and wool dyes

Curt Kosswig and Karl Friedrich Neuendorff. *Textil- u. Faserstofftech. 3, No. 3:* 137-141 (1953); *in German. Through Brit. Cotton Ind. Res. Assoc. 33:* 451 (July 15, 1953).

The application of certain types of wool and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cotton dyes to Perlon is described. Lists of dyes also indicate certain fastness properties and dye behavior.

Dyeing of Acrilan acrylic fiber

DuPont Technical Bull. 9: 120-132 (September, 1953).

A description is given of methods for dyeing Acrilan using acid, chrome, and dispersed dyes and tannic acid-tartar emetic after-treatment of acid dyeings. Performance ratings of DuPont dyes of the above types are tabulated.

Dyeing of Fibrolane blends

R. C. Cheetham. *Fibres 14:* 346-348 (October, 1953).

The properties of Fibrolane, a regenerated protein fiber, are described. Suggestions for dyeing Fibrolane/wool, Fibrolane/Fibro, and blends in various combinations are given.

Dyeing of Terylene

Fibres 14: 353-354 (October, 1953).

This article, based on available literature published by Imperial Chemical Industries Ltd., briefly outlines the present state of knowledge on the subject of Terylene dyeing.

Dyeing of vinyl resin fibres; latest advances in technique from France

Fibres 14: 349-350 (October, 1953).

Problems in connection with the dyeing of Rhovyl (filament) and Fibravyl (staple fiber), as well as Thermovyl and Isovyl, are examined.

Experiments to achieve electrolytic reduction of vat dyestuffs

G. Dierkes and W. Wansleben. *Melliand Textilber. 34:* 958-959 (October, 1953); *in German.*

Under suitable conditions, a number of vat dyestuffs can be vatted electrolytically—without the application of hydrosulfide. This process requires different voltages, depending upon the dyestuff in question. By using vats prepared electrolytically, dyeings can be produced which have the same shade as those produced from hydrosulfide vats.

Forms of dyeing; staple, yarn or piece—hank or cake—jig or winch—what factors determine suitability?

Dyer 110: 391-393 (September 18, 1953).

The various methods of textile coloring are described and compared and the position each method occupies in the industry is explained.

Levelling of dyes. Part 2

G. H. Lister. *Textile Recorder 71:* 253-254 (October, 1953).

The use of levelling agents and their mode of action are discussed.

Making up dye recipes

Nederlandse Organisatie Voor Toegepast-Natuur-Wetenschappelijk, Holland. BP 693 356. *Through Dyer 110:* 482 (October 2, 1953).

A method is given of making up a recipe of three given dyes in order to match a sample in which concentrations are determined by use of standard graphs.

New developments in naphthol AS dyeing on rayon staple fibre as slubbing or in loose form, and on cellulosic filament rayon

Werner Kirst. *Melliand Textilber. 34:* 857-858 (September, 1953); *in German.*

Starting with the well-known processes for dyeing cotton and continuous filament rayon, and the difficulties encountered in applying these processes to the dyeing of rayon staple, the author reports on a new impregnating process for producing naphthol AS shades on rayon staple bobbins and other wound packages. This new process has already been successfully tried out on a commercial scale; it avoids the troublesome alkali swelling by impregnating in soda-alkaline bath, and permits very economical dyeings with excellent fastness properties obtained.

New dyeing processes. Part 1. Batch processes

R. W. Moncrieff. *Fibres 14:* 339-342 (October, 1953).

This article outlines some of the new techniques which have been evolved during recent years for batch processing. 7 references.

New products: Latyl Violet 2R and Latyl Yellow YL

DuPont Technical Bull. 9: 101-104 (September, 1953).

"Latyl" Violet 2R will produce bright violet shades on Dacron or acetate. It can be applied to Dacron with or without carrier and is said to have good affinity, level dyeing characteristics, good penetration, and good build-up. "Latyl" Yellow YL produces bright, greenish-yellow shades with very good light fastness, wash fastness, and sublimation fastness. It is level-dyeing, has satisfactory build-up to 2%, and can be applied with or without carrier.

New screen printing techniques; light alloy carriage to reduce the work load

C. L. Wall. *Textile Merc. 129:* 515, 517 (September 18, 1953).

A brief review of labor saving devices in screen printing. A description is given of a new light alloy printing carriage developed by Wall and Company, Bolton, England.

New thickener for textile printing

W. A. Scholten's Chemische Fabrieken N. V., Netherlands. *Textile Wkly. 52:* 1538, 1540 (November 13, 1953).

"Nafka" Crystal Gum A Extra 5 and "Nafka" Crystal Gum Supra.

Notes on dyeing tub-fast colors. Part 2

F. O. Stone. *Textile Bull. 79:* 103-105 (November, 1953). *Knitter 17:* 43-44 (November, 1953).

Dyeing procedures are given for light grays on cotton and for pastel and bright greens.

Orlon—type 42; dyeing behaviour improved in new staple fibre. Part 1

Dyer 110: 423-425, 427 (September 18, 1953).

A review of the physical and chemical properties of Orlon-type 42 staple is followed by detailed discussion of methods for dyeing this fiber. Compared to type 41, Orlon-type 42 is more readily dyed and the dyed fabrics are more satisfactory.

Perspiration problems

Wool Record 84: 1092, 1094 (November 5, 1953).

Importance of correct dyeing.

Present stage of the application of colours in screen printing

Gustav Bernardy. *Melliand Textilber. 34:* 859-860 (September, 1953); *in German.*

The author reviews the present stage of the application of colors in screen printing. The survey covers the conventional and the newly developed dyestuffs, the main features of their application and the problems involved therein, and also the printing of Perlon and nylon fabrics. Not included in this survey are the process of pigment printing, which is still in an introductory stage as far as screen printworks are concerned, and the special processes such as matt, bronze, lacquer, and flock printing.

Resins in textile pigment printing

Jerome Fine. *Interchemical Review 12, No. 3:* 59-68 (1953).

A general review of the use and behavior of resins in textile printing. 4 references.

Structure and chemical properties of dyes in relation to their use

T. Vickerstaff. *J. Soc. Dyers Colourists 69:* 279-282 (August, 1953).

The relationship between dye constitution and dyeing behavior is discussed. The influences of molecule shape and ionizability of the dyes are examined in some detail. 14 references.

Sublimation fastness of disperse dyes applied to Dacron polyester fiber

DuPont Technical Bull. 9: 133-136 (September, 1953).

Three tests for sublimation fastness (sublimation, wet pressing, and dry pressing) are described. The ratings of several DuPont disperse-type dyes by these tests are tabulated.

Thiorea dioxide in textile printing

P. Krug and D. Horrocks. *Dyer 110:* 475-477 (October 2, 1953).

Under the trade name "Manofast", thiourea dioxide is used as a reducing agent for vat dyeing and printing of cellulose acetate. The reducing power develops on heating under neutral or slightly acid conditions.

Top dyeing type 42 Orlon acrylic fiber

DuPont Technical Bull. 9: 137-138 (September, 1953).

Equipment modifications to lower the liquor pressure are suggested to improve top dyeing of type 42 Orlon. After modification, level dyeings were obtained with 50 pound loads on the Fredericks system and with 100 pound loads on the Abbott system.

Transfer yarn from spring to tube and back without winding

Yarn Transfer Devices, Chicago, Ill. *Textile World 103:* 155 (November, 1953).

A yarn transfer machine that will remove yarn from mill-wound paper tubes onto dye-machine springs in a single operation is described. The process is reversible; after dyeing is completed, the yarn may be placed on the shipping tube again without winding.

Use of non-ionic level-dyeing assistants with chrome-complex dyes

I. D. Rattee. *J. Soc. Dyers Colourists 69:* 288-295 (August, 1953).

Several non-ionic dyeing assistants were studied. The formation of complexes between chrome

dyes and Lissapol N (an Imperial Chemical Industries product) was studied in detail. A dyeing process for wool, involving Lissapol N, was developed and is claimed to give superior levelness with less acid consumption. 5 references.

Vat-acid process for applying vat dyes to cotton piece goods.

DuPont Technical Bull. 9: 105-110 (September, 1953).

The vat-acid process for production of even-dyed pastel shades with vat dyes is described. A tabulation is given detailing the behavior of DuPont vats when applied by this process.

SPECIAL FINISHING F

Chemical finishing moves ahead

Textile Bull. 79: 95-102 (October, 1953).

Summaries are given of papers presented at the National Cotton Council's second Cotton Chemical Finishing Conference in October.

Connecticut research firm ok's flameproofing compounds for cotton

Am. Dyestuff Reptr. 42: 641 (September 14, 1953).

A series of tests run by the York Research Corp. on bed tickings and work clothing fabrics treated with the "Permaproof" process of Treesdale Laboratories and Textile Processing Co., Pittsburgh, Pa., showed that the fabrics withstood direct flame tests without igniting and that repeated washings failed to destroy the fire-retardant properties of the finish. It is reported that tests for char and afterglow also showed that these factors stayed well within prescribed limits.

Ducks fight fire and water

Esso Oilways 19: 1-6 (October, 1953).

Philadelphia Textile Finishers, Norristown, Pa., processes cotton duck and other fabrics to make them resistant to water, fire, mildew and weather. End uses are described.

Finishes for cellulosic textiles giving permanent protection against microbiological attack—a survey of the literature

Mary Hamlin. *Shirley Institute Memoirs 26:* 207-215 (September, 1953).

There are two possible ways in which permanent resistance to microbiological attack can be imparted to cellulosic fibers: the physical nature of the fiber surface may be modified by the attachment to it of a thin film of resistant material which acts as a barrier against the organism,

or alternatively, the cellulose itself may be chemically modified by esterification or etherification. This survey of the literature is concerned with both of these forms of rot-proofing process. 44 references.

New aspects on the creaseproofing of woven fabrics

H. Jorder and W. Walter. *Melliand Textilber. 34:* 965-969 (October, 1953); *in German.*

This paper describes the processes that take place in the drying of fabrics which have been impregnated with synthetic resin precondensates for creaseproofing. It has been demonstrated that, with the aid of the method of "shock" drying recommended by Elod, the migration of the synthetic resins to the surface of the fabric can be prevented. Apart from this, the thermal "shock" effect permits the desired condensation stage to be achieved. References.

New finishing technique for nylon tricot nets

Robert N. McColl. *Textile Age 17, No. 8:* 38-42 (1953). Through *Chemical Abstracts 47:* 9620 (September 25, 1953).

Utilization of heat-setting equipment for stiff finish nets shows major improvement in color and stability without any loss of desired hand.

Rugs that stay cleaner

Chem. Week 73: 48-50 (October 31, 1953).

Cotton and synthetic rugs are now being treated with colloidal silica by manufacturers to retard permanent soiling.

Shrinkproofing of fabrics

Charles G. Hatay (to E-Z Mills, Inc.). USP 2 655 711, October 20, 1953.

A process in which the fabric wetted with a wetting agent is wound in a coil in a tensionless and compressionless condition and internally heated until the wetting agent is evaporated.

Taming static, a new chemical product makes a start toward licking an old problem

DuPont Magazine 47: 7 (October-November, 1953).

Zelec DX and DP antistatic agents are applied to fabrics by the finisher.

TESTING AND MEASUREMENT G

Contribution to the theme of antistatics from the aspects of measurement techniques

Walter Sprenkmann. *Melliand Textilber. 34:* 971-972 (October, 1953); *in German.*

The author gives an exact description of a method of measuring the efficiency of antistatics. The requisite equipment is simple and cheap to construct. Electrostatic charges are built up by rubbing stretched Perlon continuous filaments which have been prepared in different ways, and the force with which these filaments repel one another is then measured. The efficiency of this method is discussed.

Cotton and viscose staple fibre in blends

E. A. W. Boyce. *Can. Textile J. 70:* 62, 65-67 (November 20, 1953).

Methods employed to distinguish between cotton and viscose staple fiber in blends of the two are surveyed, as well as the practice of blending small amounts of two fibers for dress goods which has brought many problems to dyers and finishers. 5 references.

Densities of textile fibres

W. R. Moore. *Textile Recorder 71:* 255-257 (October, 1953).

Methods of density determination are described, as well as their uses in studying fiber structure, fiber identification and the analysis of fiber mixtures. 9 references.

Detection of fishy odour in materials finished with carbamide resins

Ciba Review No. 99: 3573-3576 (August, 1953).

This article offers a simple method for furnishing chemical proof of the presence of trimethylamine in fabrics, irrespective of whether it is present in the form of a free base or combined. 4 references.

Experiments with an alkali swelling-centrifuge test applied to cotton fiber

P. B. Marsh, G. V. Merola, and M. E. Simpson U. S. Bur. of Plant Inudstry, Beltsville, Md.) *Textile Research J. 23:* 831-841 (November, 1953).

Experiments on cotton fiber with an alkali swelling-centrifuge-weight increase test are described, and various aspects of the methodology of the test are reported. The standardized test procedure is simple and practical. The fiber-deteriorative agencies which have been shown to bring about changes in the alkali-centrifuge value of cotton fiber include micro-organisms, certain enzymatically active filtrates from microbial growth media, sodium hypochlorite, hydrochloric acid, heat, and weathering. The microbial and enzymatic effects have been studied in more detail than the others. 14 references.

A handbook of twisting. Part 2

Neal Truslow (United States Rubber Co., Winnsboro, S. C.). *Textile Bull. 79:* 71-73 (October, 1953).

Testing and measurement of twist.

Interfiber pore-size distribution in lint cotton

Evald L. Skau, Edith Honold, and William A. Boudreau (Southern Regional Research Laboratory, New Orleans, La.). *Textile Research J. 23:* 798-803 (November, 1953).

This report deals with the effects of fiber characteristics on pore-size distribution, and shows the volume-pressure relationships in loose masses of cotton fibers. The procedure for the determination of pore-size distribution of textile materials by the mercury-intrusion method was simplified by an adaptation of a commercially available high-pressure porometer. The conclusion was reached that it is possible to produce cotton wads, yarns, or fabrics whose pore-size distribution will approach specific requirements if due consideration is given to the weight-fineness and cross-sectional shape in choosing the component fibers, to the degree of fiber packing, and to the proper mixing of dissimilar cotton fibers. 9 references.

Measurement of friction between single fibers. Part 7. Physico-chemical views of interfiber friction

Nils Gralen, Bertil Olofsson, and Joel Lindberg (Swedish Institute for Textile Research, Gothenburg, Sweden). *Textile Research J. 23:* 623-628 (September, 1953).

This paper states that the classical laws of friction of Amontons are not valid for interfiber friction. The coefficient of friction is not a constant, but decreases in general with increasing load. The interfiber friction is discussed on the basis of the theory of Bowden and Tabor, according to which the force of friction is proportional to the real area of contact. When two fibers are pressed together under a certain load, a deformation will occur which is partly elastic and partly plastic. It is possible to deduce theoretically from this assumption a formula for the force of friction, which shows that the coefficient of friction cannot be constant for materials of the kind used in textile fibers, but depends also on the length of the contact line and the fiber radius. It is shown that the theoretical relation obtained gives a good description of experimental results obtained for nylon and polyester fibers. 9 references.

Method of preparing bulk cottons for nep counting

Priscilla L. Orcutt and Helmut Wakeham (Textile Research Institute, Princeton, N. J.). *Textile Research J. 23:* 614-616 (September, 1953).

This paper shows that the nep count of a cotton sample can be determined quickly and easily when ginned cotton, sliver, roving, or waste is prepared for counting with the aid of a mechanical blender of the type developed by the U. S. Dept. of Agriculture. The time required for six counts on one sample is about 30 minutes, which is considerably less than that needed if preparation is by hand. The method permits a rapid evaluation of nep content at all stages in cotton processing prior to yarn spinning. 5 references.

Observations on the evaluation of the fastness to washing of textile goods

H. Mendrzyk. *Melliand Textilber. 34:* 957 (October, 1953); *in German.*

In the methods of evaluating the fastness to water and washing of dyed shades according to the tentative standards DIN 53 953 and 53 956, no significance is attached to the fact that the liquor may sometimes become stained. However, some cases of tests carried out in practice show what inconvenience may be caused by this fact in evaluating fastness tests.

Simple flexibility test

Dietrich G. Stechert (Gates Rubber Co., Denver, Colo.). *Anal. Chem. 25:* 1730-1733 (November, 1953).

An extremely simple piece of equipment for measuring flexural rigidity of rubber hoses and belting.

Simple method for the identification of amino plastics in crease-proofed fabrics and in other applications

E. Elod and H. Jorder. *Melliand Textilber. 34:* 860-863 (September, 1953); *in German.*

In order to identify artificial resins (amino plastics), these substances are transferred, e.g. from creaseproofed fabrics, to filter paper and recognized by the characteristic dyeing produced on the latter. This is a rapid method of identification which can be carried out with minimum quantities. Color chart, tables, and 8 references.

Clothing and Fabrics G 1

Clothing Institute Conference, Leeds, England. November 1953

Textile Merc. 129: 986-1001 (November, 13, 1953).

Summaries of conference papers are presented.

Development of a pilling test for apparel fabrics

Jack J. Press (Clothing Supply Office, U. S. Naval Supply Activities). *Textile Age 17:* 24-30 (November, 1953).

A general discussion of the problem of pilling is followed by a description of the development of a new laboratory machine for testing fabric appearance changes, such as fuzzing, pilling, nap removal and shine development. A standard pilling test was devised and data on the fabrics tested is presented. These investigations explain the general nature of the rate processes involved in pill formation during wear and the basic difference in pilling observed between wool-blend and fully synthetic fabrics.

Measurement of piece goods

Arne Kindstrand. *Tidsskrift for Textilteknik 11:* 177-182 (October, 1953).

A report is given of two papers on the measurement of piece goods. The first paper gives a detailed description of a new Swedish control method, while the other gives a general view of this type of measuring instrument and proceeds to tabulate the results of a series of comparative measurements obtained by different means, results which support the adoption of the new Swedish method.

Fabric uniformity from top blending of wool with rayon or nylon

Alfred R. Macormac and Harriet Harvey Reed (U. S. Bureau of Human Nutrition and Home Economics). *Textile Research J. 23:* 842-847 (November, 1953).

To determine the uniformity attained by top blending, fibers were counted in samples of finished fabrics made of eight blends of 3-denier rayon or nylon with coarse or medium wools. The composition by number of fibers was then converted into composition by weight. The results agree with the manufacturing specification and with chemical analyses by the potassium hydroxide method. The average of samples consisting of at least 500 fibers indicates that the blending is uniform. When fibers of different diameter and density are blended, the composition by number of fibers differs markedly from the composition by weight, as would be expected. The composition by number of fibers is a factor in the dyeing, finishing, and hand of the finished fabric and should be taken

into consideration in the manufacture of blended fabrics. 9 references.

Nature of a fabric surface: evaluation by a rate-of-cooling method

Norman R. S. Hollies, Herman Bogaty, John C. Hintermaier, and Milton Harris. *Textile Research J. 23:* 763-769 (November, 1953).

A simple method is given for describing the surface character of fabrics in a quantitative manner. The method is based on cooling-rate determinations at the fabric surface. The results obtained appear to relate to certain characteristics of fabric handle which are generally described subjectively by adjectives on a "hairy to smooth" or "warm to cool" scale of values. A theoretical analysis is given of the method presented, which permits interpretation of the results in terms of the number of surface fibers, their mean length, and the unit thermal conductance of the fiber. Application of the theory to simulated pile fabrics of polyethylene and fabrics of wool appears to validate the general correctness of the theory. 7 references.

Report on comparative sunlight and Fade-Ometer tests of selected dyed manufactured samples

Matthew J. Babey. *Am. Dyestuff Reptr. 42:* P748-P752 (November 9, 1953).

A large number of dyed synthetic fabric samples were tested for sunlight fading (in Florida) and Fade-Ometer fading. The character of the fading caused by the two methods was found similar, although the rate of fading, in many cases, was faster in the Fade-Ometer. Experimental results are tabulated. A new Gray Scale, adopted by the International Organization for Standardization and used in these experiments is included.

Thermal properties of textile materials

G. J. Morris. *J. Textile Institute 44:* T449-T476 (October, 1953).

From a survey of the literature covering the years 1930-50 the available physical data on the thermal properties of textiles have been collected. The thermal properties were divided into three sections: (a) Factors contributing to thermal insulation. Thermal insulation is defined as the effectiveness of a fabric in maintaining the normal temperature of the human body under equilibrium conditions. (b) Factors contributing to 'cold feel'. 'Cold feel' is that property which is assessed by the initial reaction of a person on touching a fabric. (c) Factors contributing to 'chillproofness'. 'Chillproofness' is defined as the

ability of a fabric to reduce the effect on the human body of sudden changes in atmospheric temperature and humidity. Thermal insulation of fabrics depends largely on the thickness of the fabric and is independent of the fiber material. The 'cold feel' depends mainly on the area of contact between fabric and skin; thus fabrics made from continuous filament yarns are 'colder' than those made from highly crimped staple, independent of the type of fiber. The 'chillproofness' depends upon the water-absorption and the heat of absorption of the fiber material. 76 references.

Instruments and Instrumentation G 2

Apparatus for testing resistance to abrasion

J. Juilfs. *Waschereitechn.* 516 (1952): *Textil-Rund. 8:* 145-146 (March, 1953). Through *J. Soc. Dyers Colourists 69:* 314 (August, 1953).

In Weltzien's apparatus (*Knickscheuerprufer*), a test piece, 3 cm. wide, is led over two rollers and held by a fixed clamp and another clamp attached to a mobile carriage. The abrasion element oscillates centrally between the rollers. By loading the carriage the tension in the test piece and its pressure against the abrasion element can be varied. A carborundum wedge of defined grain-size serves as abrasion element, but wedges covered with material may be used for special purposes. For assessment, the number of oscillations before break is used.

Cloth thickness tester

Reynolds and Branson Ltd., Leeds, England. *Textile Merc. 129:* 961 (November 6, 1953).

A new cloth thickness tester which gives a precise and reproducible measure of cloth thickness over a wide range of light pressures is described.

Control instruments and their application in modern dyehouse operations

Walter H. Ridley (Foxboro Co., Foxboro, Mass.). *Am. Dyestuff Reptr. 42:* P624-P626 (September 14, 1953).

The attainment of modern standards of quality in dyeing and efficiency in operation is greatly faciliated by the use of control instruments. This is particularly true in the use of high temperatures and continuous equipment. The author discusses especially time-schedule temperature control of various types and time-schedule control of liquor flow. The general advantages of automatic control are pointed out.

Determination of surface tension with the torsion balance according to Lottermoser-Winter

Heinz Anders. *Melliand Textilber. 34:* 948-949 (October, 1953) ; *in German.*

This paper first explains the nature of surface tension which is expressed in dynes per centimeter. After enumerating the possible methods of determining the surface tension of liquids with the aid of the capillarometer according to Cassel, and Traube's stalagmometer, the author describes the method using the torsion balance according to Lottermoser-Winter. Details of this apparatus are given—its features, how it should be mounted and operated, and how it functions.

Determination of the fineness of wool with the microscope

Erwin v. Gizycki. *Melliand Textilber. 34:* 947-948 (October, 1953) ; *in German.*

The author describes a device which he has constructed himself for determining the average diameter of wool fibers without measuring the individual diameters. With this device, the results for about 240 fibers, depending upon the fineness, are obtained within 2 hours.

Device for examination of thickness of a running thread

S. Kawata, and K. Segawa (Kyoto University, Japan). *Textile Research J. 23:* 643-644 (September, 1953).

A brief description is given of a device for photo-electric examination of the thickness of a yarn. Photographs showing the results of repeated runs of yarn are included.

Frictional properties of filament yarns and staple fibers as determined by the stick-slip method

G. W. Bartlett, T. M. Smith, and H. A. Thompson (Tennessee Eastman Company, Kingsport, Tenn.). *Textile Research J. 23:* 647-657 (September, 1953).

This paper describes instruments for measuring the forces involved in the stick-slip process in filament yarn friction and the forces between staple fibers during drafting. Electrical strain gages and high-speed recording instruments have been incorporated into testing equipment to furnish an accurately recorded measurement of the rapidly fluctuating forces which may occur during motion of yarn or fiber samples. Details of calibration and performance are given, together with typical tests illustrating the wide range of results observed. A simple equation has been employed to assign a numerical value to smoothness of fiber movement. Both static and kinetic values of

friction can be obtained from a single stick-slip cycle. 17 references.

IDL introduces new model colorimeter

Instrument Development Laboratories, Needham, Mass. *Am. Dyestuff Reptr. 42:* 646 (September 14, 1953).

The new model "C" Color-Eye has been redesigned for greater versatility and lower cost. New features include forced cooling, dual area viewing for large and small sample areas, and direct reading in terms of X, Y, and Z adjusted values.

New cloth inspection machine

Henry Livesey, Ltd., Blackburn, England. *Dyer 110:* 395-396 (September 18, 1953).

This new "S" type cloth inspection machine is designed to give constant cloth speed and cloth tension (features of the previous "R" model) plus reversibility of cloth direction. The table is adjustable in height and angle and the driving mechanism is completely enclosed.

New high-speed yarn quality analyzer

Fielden (Electronics) Ltd., Manchester, Eng. *Textile Mfr. 79:* 530 (October, 1953).

This analyser does not draw a graph but rapidly examines a length of yarn (100 feet in 10 seconds). The machine stops itself, leaving the results standing on the different dials of the panel indicating mean deviation, count, variation, short-wave irregularity, long-wave irregularity and number of slubs.

Testing the abrasion resistance of fabrics

Jurgen Mecheels. *Melliand Textilber. 34:* 848 (September, 1953) ; *in German.*

The author describes a new rotary abraser which conforms to the conditions of daily usage of textile fabrics and enables far better reproducible results to be obtained than has hitherto been possible.

TEXTILE MILLS H

Textile Industries 14th modern equipment and processing review

Textile Industries 117: 133-164, 173-217, 241-267 (November, 1953).

This review provides information on new equipment, accessories, and services which have been made available or improved in 1953.

Textile World presents annual mill check-up section and 1953 review of new equipment

Textile World 103: 99-135, 212-252 (No-

vember, 1953).

A higher share of expenditures for mill improvements and a lower share for new building was the mill-expenditure pattern this year. In 1953 cotton spindle activity was up 15% and fiber consumption was up 8%. There has been a 300% gain in productivity since 1920. New machinery, equipment, and supplies announced during the last twelve months are reviewed.

Exhibition round-up

Textile Merc. 129: 682-823 (October 16, 1953).

The entire issue is devoted to descriptions of exhibits at the Textile Recorder International Textile Machinery Exhibition.

The Textile Recorder International Machinery and Accessories Exhibition, Manchester, Oct. 1953

Textile Recorder 71: 121-252 (October, 1953).

Special exhibition section with descriptions of exhibits alphabetically arranged by name of manufacturer.

What to look for at Belle Vue

Skinner's Silk and Rayon Record 27: 1100-1146, 1199-1202 (October, 1953).

Description of exhibits at the October Textile Recorder Machinery Exhibition in Manchester, England.

Demineralization of water by electrolytic and ion exchange processes

L. Streicher, A. E. Bowers, and R. E. Briggs. *Ind. Eng. Chem. 45:* 2394-2401 (November, 1953).

A combination of electrolytic cells and ion-exchange resins is suggested for economical purification of water containing 1,000 to 3,000 parts per million of dissolved solids. Several electrolytic and non-electrolytic purification methods are also discussed and compared. 11 references.

Fuel conservation in the textile industry

Dyer 110: 397-400 (September 18, 1953).

Among the modern methods for increasing fuel conservation and heating efficiency are use of enclosed machines, direct gas heating instead of steam, high pressure on squeeze rolls for more mechanical water removal, equipment to remove water-logged air from drying areas, and prevention of over-drying by moisture-content control. These observations and comparisons of U. S. and British methods come from the productivity report *Fuel Conservation,* published by the British Productivity Council.

Fuel efficiency in the dyeing and finishing industries

W. Short. *J. Soc. Dyers Colourists 69:* 329-335 (September, 1953).

This study of actual methods used in England for fuel conservation includes figures for a large number of performance ratings for installations with and without various improvements.

Mechanical accounting in the textile industry

A. W. Mattocks. *J. Textile Institute 44:* P722-P726 (October, 1953).

Application of punched card records to the textile industry.

Mill electrical problems are cited and various remedies suggested

Textile Bull. 79: 110-115 (November, 1953).

Papers given at the second annual Conference on Electrical Equipment for the Textile Industry held in October at North Carolina State College are summarized.

Modern aspects of factory painting. Part 2

M. E. D. Jarrett. *Textile Recorder 71:* 261-263 (October, 1953).

The technical aspects of factory painting are discussed, as well as types of finishes available and practical information regarding their application and suitability for various purposes.

Punched card accounting finds new uses in the textile industry

Thomas P. McNamara. *Textile Forum 10:* 9-11 (October, 1953).

IBM machine accounting methods can be used to improve production control techniques.

Quality control in the cotton industry

W. S. Sondhelm. *J. Textile Institute 44:* P717-P721 (October, 1953).

A discussion of the function of quality control to indicate when action becomes necessary to prevent the manufacture of faulty material and to reduce production costs by eliminating waste. 7 references.

Safety begins with the operator

W. A. Meddick (Elwell-Parker Electric Co.). *Textile Age 17:* 38-41 (October, 1953).

A planned program of proper industrial truck operation increases operating efficiency and cuts accidents.

Uses of sprayed asbestos

A. E. Williams. *Textile Merc. 129:* 653-656 (October 9, 1953).

Spraying asbestos fiber onto the ceilings and interior wall surfaces of mills has for its object the creation of improved thermal insulation, prevention of condensation, reduction of fire hazard, and the elimination of noise.

Automatic transportation via monorail

Textile Age 17: 16-18, 21 (October, 1953).

This article describes the transfer of heavy loads by means of self-operating overhead carriers.

Better quality through modern materials handling methods

Peter E. Glasser (Werner Textile Consultants). *Textile Age 17:* 22-24 (October, 1953).

Good packaging is an important part of materials handling

Textile Age 17: 42-43 (October, 1953).

Elimination of 40% of hand labor in baling cloth by tucking burlap covers under steel strapping is reported by engineers of the Acme Steel Company. A series of photographs illustrates the technique.

Handling "round loads" in the mill

Textile Age 17: 46-67 (October, 1953).

Some of the leading attachments for handling round-shaped products and containers are described.

Manual handling proves expensive

W. E. Schirmer (Clark Equipment Co.). *Textile Age 17:* 32-37 (October, 1953).

Operating efficiently and economically with modern materials handling equipment.

Tramrail system serves warping and slashing operations

R. J. Wilson. *Textile Age 17:* 75-76 (October, 1953).

Layout and description of operation of overhead tramrail mechanical beam handling system at Shelby Cotton Mills.

Truck bottom lifts as the bobbins are removed

Excel Textile Supply Co., Lincolnton, N. C. *Textile World 103:* 160 (November, 1953).

An automatic-spring lift raises the bottom as the bobbins are lifted out.

Warp beam storage and transportation

E. Matuscheck. *Melliand Textilber. 34:* 929-931 (October, 1953); *in German.*

The author gives examples from mill practice showing how space can be saved by skillful ar-

rangement of warp beam stands. Closely connected with this problem is that of warp beam transportation, concerning which the author also offers some new suggestions.

What's new in materials handling equipment?

Textile Age 17: 88-91 (October, 1953).

A brief summary of some of the new materials handling equipment placed on the market in the past few months which should prove of interest to mills.

Adams-Millis Corporation

Textile Age 17: 6-13 (October, 1953).

The story of the Adams-Millis Corporation, High Point, N. C., which produces a wide variety of hosiery.

American Enka Corporation

Textile Age 17: 54-58 (October, 1953).

This is the tenth in a series on leading producers of man-made fibers. A list of American Enka textile and high tenacity yarns is given.

Chatham Manufacturing Company; famous makers of fine blankets and wool fabrics

Whitin Review 20: 1-13 (September-October, 1953).

Story of the H. F. Livermore Corporation, pany, Elkin, N. C., and description of its equipment.

Livermore success result of New England ingenuity

Am. Textile Reptr. 67: 35, 113 (November 19, 1953).

Story of the H. F. Livermore Corporation, Boston, Massachusetts, largest independent manufacturer of improved loom parts for weavers.

Manufacture of modern denims at Lane Cotton Mills, New Orleans, La.

Whitin Review 20: 14-20 (September-October, 1953).

Moving plant pays dividends to General Knitting Mills

David M. Clark. *Knitter 17:* 29-30, 32 (November, 1953).

A description is given of the changes involved in moving General Knitting Mills, Inc. from Allentown, Pa., to Monroe, N. C.

New equipment, plus ingenuity, mean savings at Standard-Coosa-Thatcher's Piedmont, Ala. mill

Textile Bull. 79: 110-111 (October, 1953).

Combination oil and gas-fired boilers plus

some innovations on air compressors provide safe operation with minimum supervision and a cleaner boiler room floor.

Saran Yarns Company

Textile Age 17: 82-85 (November, 1953)

Survey of the Saran Yarns Company, Odenton, Md., and Saran products. A list is given of the types of yarn and staple fiber available and their properties.

The story of Albert G. Meyers

David M. Clark. *Textile Bull. 79:* 65-68 (October, 1953).

Life and career of Albert G. Myers of Textiles, Inc., Charlotte, North Carolina.

Trent Cotton Company, Limited, Trenton, Ontario

Whitin Review 20: 26-38 (September-October, 1953).

Improved quality and increased production through modernization of spinning.

U. S. Bobbin and Shuttle Co. opens modern warper beam manufacturing plant in Keene, N. H.

Textile Age 17: 78-80 (October, 1953).

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Antistatic agents a great aid in processing synthetics

Clarence Campbell. *Textile Age 17, No. 9:* 24-27 (1953). Through *Chemical Abstracts 47:* 10857 (October 25, 1953).

Durable antistatic agents prevent the build-up of electrostatic charges on nylon, acetate, Dacron, Dynel, Orlon, etc. during spinning of the yarn, dyeing of the fabric, mechanical handling of the fabric, and in the service life of the fabric. Three basic ways chemical antistatic agents function are: (1) they improve the surface condition of the fibers thereby helping to dissipate static charges; (2) they increase hygroscopicity, and (3) they may be helpful by generating a static charge of opposite polarity to that generated by the fiber. The best antistatics operate in all 3 ways to some extent.

Armour marketing two new synthetic detergents

Armour and Co., Chicago, Ill. *Am. Dyestuff Reptr. 42:* 646 (September 14, 1953).

Two new non-ionic detergents for textile scouring operations are described. Energetic is highly concentrated and quantities required will seldom exceed one-third those of conventional anionic

materials. Energetic S is designed for use in the presence of petroleum and aromatic solvents.

The chemistry of silk fibroin. Part 1. The action of some proteolytic enzymes on fibroin in aqueous solution, and its bearing on the molecular structure of silk

B. Drucker, Ruth Hainsworth and S. G. Smith. *J. Textile Institute 44:* T420-T435 (October, 1953).

15 references.

A compression extraction method for extracting textile materials

Harold W. Wolf and Richard S. Rankl (Forstman Woolen Co.). *Am. Dyestuff Reptr. 42:* 617-620 (September 14, 1953).

A rapid method for extracting grease or oil from wool is described. After applying a small correction factor, percent oil or grease content corresponds closely with the Soxhlet extraction value. The apparatus is both simple and durable.

Degradation of cellulose during mechanical processing. Part 4. Size reduction of cotton in a Wiley mill

Robert F. Schwenker, Jr., and John C. Whitwell (Textile Research Institute, Princeton, N. J.). *Textile Research J. 23:* 804-808 (November, 1953).

The degradative effect of the Wiley mill on cotton samples and the variables affecting this action are discussed. It is concluded that one of the most important mill variables is blade spacing, and that the form of the cotton sample is also of paramount importance. A microscopic examination of fiber segments confirms the latter conclusion. It is possible that the amount of degradation may also be a function of the D.P. of the sample. 15 references.

Determination of microcrystallite size by the small-angle x-ray technique in rayons

A. N. J. Heyn (Clemson College, Clemson, S. C.). *Textile Research J. 23:* 782-787 (November, 1953).

The scattering of x-rays at small angles by various rayons of high orientation was investigated at various degrees of swelling. The occurrence of inflection points of maxima-minima in the scattering curves of these fibers at certain degrees of swelling is explained by interparticle interference in the densely packed condition. The experimental conditions necessary for a reliable determination of particle size (diameter of microcrystallites) for these fibers are derived from

the results obtained, and particle sizes determined by this method are given. 7 references.

Effect of electrolytes on the rate of surface tension lowering; the rate of surface equilibrium attainment as a factor in detergency

Emil J. Burcik. *J. Colloid Sci. 8:* 520-528 (October, 1953).

A good correlation with detergent power is shown. Several factors affecting detergency are discussed. 13 references.

Experimental study of stiffness and nonuniformity in the vibroscopic determination of fiber cross-sectional area

E. T. L. Voong and D. J. Montgomery (Textile Research Institute, Princeton, N. J.). *Textile Research J. 23:* 821-830 (November, 1953).

An experimental investigation has been made of the effect of stiffness and nonuniformity in filaments on the vibroscopic determination of linear density. For the samples studied (tungsten wire, wool fibers, nylon filaments) the effect of damping and of support motion was ordinarily negligible. The effect of stiffness in raising the natural frequencies follows theory, as does the effect of nonuniformity in changing the natural frequencies and in shifting the nodes. When appropriate corrections for these effects are made, the vibroscope provides an accurate method for determining linear density of filaments, the values found agreeing with direct weight determinations within the precision of the weighing. 9 references.

Fading of dye solutions by ultrasonics. Part 3. Relation between ultrasonic fading and light fading

T. Azami and T. Hinohara. *J. Chem. Soc. Japan, Pure Chem. Sectn., 73:* 713-715 (1952). Through *J. Soc. Dyers Colourists 69:* 356 (September, 1953).

Fading by light of a dilute aqueous solution of dye is paralleled by that resulting from the action of ultrasonic vibration, and it may be possible to work out a method of utilizing ultrasonics to test the fastness of dyes to light.

Fibre, dirt and the washing process

Herbert Schwerdtner. *Textil- u. Faserstofftech. 3, No. 2:* 76-85 (1953); *in German.* Through *Brit. Cotton Ind. Res. Assoc. 33:* 460 (July 15, 1953).

The structures of natural and regenerated cellulose fibers and of detergents (including soaps) are described in some detail, and their

relationship to the harboring and removal of dirt respectively are discussed with the help of numerous diagrams and photomicrographs.

Fibres for pulp and paper manufacture. Part 3

Julius Grant. *Fibres 14:* 258-360 (October, 1953).

In the conclusion to this series, the alkali processes of converting raw materials into pulp, including the straight soda, sodium sulfide and alkali-chlorination processes, are described. Also, the comparatively new combined mechanical and chemical process, involving the use of the hydrapulper, is discussed.

Hydrocellulose water flow number; relationship to fine structures of fibers, particularly fiber orientation

O. A. Battista, J. A. Howsmon, and Sydney Coppick (American Viscose Corp., Marcus Hook, Pa.). *Ind. Eng. Chem. 45:* 2107-2112 (September, 1953).

Hydrocelluloses prepared in a uniform manner show marked variations in the rate at which water may be filtered through them. This rate, called the hydrocellulose water flow number, is determined by an easy and reproducible method. The work, carried out on regenerated celluloses, shows a close correlation between the hydrocellulose water flow number and the degree of fiber orientation as measured by linear swelling or x-ray diffraction. 10 references.

Methylation of cellulose with diazomethane, and some properties of the products

D. A. Sitch. *J. Textile Institute 44:* T407-T419 (October, 1953).

Comparative methylations of cotton, mercerized cotton, cuprammonium rayon, a powdery hydrocellulose, and a product obtained by grinding cotton in a ball mill, have shown that the degree of methylation achieved with etherial diazomethane decreases with increasing crystallinity of the cellulose material. Methylation of cellulose with diazomethane greatly increases its loss of weight on heterogeneous hydrolysis with acid. Chromatographic separation of the methylglucoses produced by hydrolysis of a cellulose methylated with diazomethane has shown that this material contained mono-, di-, and tri-substituted glucose units. In the metaperiodate oxidation of a series of methylcelluloses prepared with diazomethane, an increase in the degree of methylation has been found to result in a decrease in the rate of Malaprade reaction but an increase in the rate of the degradative over-oxidation processes. 16 references.